American Society of Civil Engineers

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Testimony of

The American Society of Civil Engineers

Before the Subcommittee on Economic Development, Public Buildings,

and Emergency Management

of the

House Committee on Transportation and Infrastructure

on the

Reauthorization of the National Dam Safety Program Act

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Mr. Chairman and Members of the Subcommittee:

Good afternoon. I am Larry Roth, the Deputy Executive Director of the American Society of Civil Engineers (ASCE).* I am a licensed Professional Engineer and a licensed Geotechnical Engineer in the state of California. Before joining the ASCE staff, I had 30 years' experience in water resources engineering, including dams, levees, and canals.

Let me start by thanking you for holding this hearing. As someone who has worked in this field for many years, I can say that there are few infrastructure issues of greater importance to more Americans today than dam safety. So I am very pleased to appear today to testify for ASCE in strong support of **H.R. 4981, the Dam Safety Act of 2006.** We believe that Congress should pass this bill without delay in order to reauthorize the National Dam Safety Program Act.

In addition, ASCE urges the subcommittee to approve companion legislation, **H.R. 1105, the Dam Rehabilitation and Repair Act of 2005**, which would amend the National Dam Safety Program Act to provide critically needed funding for repairs to publicly owned dams across the United States.

Conditions

Like all man-made structures, dams deteriorate. Deferred maintenance accelerates deterioration and causes dams to be more susceptible to failure. As with other critical infrastructure, a significant investment is essential to maintain the benefits and assure the safety that society demands.

Last year, ASCE issued the latest in a series of assessments of the nation's infrastructure. Our *2005 Report Card for America's Infrastructure* found that that the number of unsafe

* ASCE, founded in 1852, is the country's oldest national civil engineering organization. It represents more than 139,000 civil engineers in private practice, government, industry, and academia who are dedicated to the advancement of the science and profession of civil engineering. ASCE is a 501(c) (3) non-profit educational and professional society.

dams in the United States rose by a stunning 33 percent between 1998 and 2005. There are now more than 3,500 unsafe dams nationwide.

Moreover, the nation's dam safety officials estimate that it would cost more than $10 billion over the next 12 years to upgrade the physical condition of all critical non-federal dams—dams that pose a direct risk to human life should they fail.

The problem of hazardous dams is potentially enormous. As the Congressional Research Service (CRS) stated last September, unsafe dams represent a serious risk to public safety. The CRS study said: "While dam failures are infrequent, age, construction deficiencies, inadequate maintenance, and seismic or weather events contribute to the likelihood [of failure]. To reduce the risk, regular inspections are necessary to identify deficiencies and then corrective action must be taken."

Although catastrophic failures are rare, the states reported 1,090 dam safety incidents— including 125 failures— between 1999 and 2004. A number of factors, including age, construction deficiencies, inadequate maintenance, and seismic or weather events, contribute to the likelihood of dam failure, according to the CRS.

The recent dam failures in Hawaii, Missouri, New York, Missouri, and the near failure in Massachusetts last year have brought into tragic focus the potential consequences of aging and unsafe dams. Recent extreme rainfalls in the Northeast this summer brought further attention to the vulnerability of dams in Maryland, New York, and Pennsylvania.

The number of high-hazard dams—dams whose failure would cause loss of human life—is increasing dramatically. By 2005, the number of high-hazard-potential dams totaled more than 10,000 nationally. As downstream land development increases, so will the number of high-hazard potential dams. As these dams often require major repair to accommodate more stringent inspection, maintenance and design standards, financial support for state dam safety programs must keep pace.

Even more alarming, states presently report more than 3,500 "unsafe" dams, which have deficiencies that leave them more susceptible to failure. Many states have large numbers of unsafe dams, including Pennsylvania (325), New Jersey (193), and Ohio (825). The actual number is potentially much higher; some state agencies do not report statistics on unsafe dams.

The combined effect of rapid downstream development, aging or non-compliant structures, and inadequate past design practices—coupled with a predicted increase in extreme events—demands fully funded and staffed state dam safety programs, as well as substantial and proactive funding for dam repairs.

The National Dam Safety Program

Congress has been committed to dam safety for more than 30 years. It enacted the National Dam Inspection Act of 1972, which created the National Inventory of Dams

(NID). The NID, last updated in February 2005, now lists more than 79,000 U.S. dams of varying purposes, ownership, and condition. More than half are privately owned; less than five percent are owned by the federal government.
H.R. 4981, a bipartisan bill, ensures that adequate corrective action will be taken in a timely manner.

The bill is quite simple. It amends and reauthorizes the National Dam Safety Program Act. Let me summarize its chief provisions briefly. The bill would require—

- The Secretary of the Army, acting through the Chief of Engineers, to maintain and update information on the inventory of dams in the United States, including an assessment of each dam based on inspections completed by either a federal agency or a state dam safety agency.
- The strategic plan for dam safety prepared by the Director of the Federal Emergency Management Agency (FEMA) to establish performance measures, in addition to goals, priorities, and target dates, toward effectively administering the Act to improve dam safety.
- A state dam safety program, to be eligible for assistance under the Act, to include: (1) the authority to require or perform inspection at least every five years of those dams and reservoirs that pose a significant threat to human life and property; (2) a procedure for more detailed and frequent safety inspections; and (3) the authority to issue notices to require owners of dams to install and monitor instrumentation.

Finally, H.R. 4981 reauthorizes very modest appropriations for the National Dam Safety Program, the National Dam Inventory, and for research, training, and staff.

This bill would continue the task of ensuring that the nation's dams remain safe and productive for many years to come. ASCE is pleased to encourage its enactment.

History of the National Dam Safety Program

In 1974, Congress approved the first comprehensive federal system for enhancing dam safety through the National Dam Safety Program Act.

The National Dam Safety Program, administered by the Director of the Federal Emergency Management Agency (FEMA), applies to federal and non-federal dams. Although the legislation targets dams at least 25 feet high and impounding at least 25 acre-feet of water, it can encompass any barrier that FEMA determines is likely to pose a significant threat to human life or property if the barrier fails.

FEMA has the authority to establish an advisory National Dam Safety Review Board (Board) to advise and assist the Director on implementation of the program. The legislation also established an Interagency Committee on Dam Safety (ICODS) to encourage the establishment and maintenance of effective federal and state programs, policies, and guidelines intended to enhance dam safety for the protection of human life and property. FEMA, in consultation with ICODS and state dam safety agencies, and the

Board are responsible for establishing and maintaining a coordinated national dam safety program.

The objectives of the program are to ensure that new and existing dams are safe through the development of technologically and economically feasible programs and procedures for national dam safety hazard reduction; encouragement of acceptable engineering policies and procedures to be used for dam site investigation, design, construction, operation and maintenance, and emergency preparedness; encouragement of the establishment and implementation of effective dam safety programs in each state based on state standards; development and encouragement of public awareness projects to increase public acceptance and support of state dam safety programs; development of technical assistance materials for federal and non-federal dam safety programs; and development of mechanisms with which to provide federal technical assistance for dam safety to the non-federal sector.

The U.S. Army Corps of Engineers continues to have the authority to carry out a national program of inspection of dams originally authorized in August 1972, and now incorporated in the National Dam Safety Program. But this Corps inspection program is currently unfunded and inactive because of the establishment of state programs for inspection of non-federal dams.

Under this authority, the Corps can inspect all dams in the United States (as defined by the legislation) except those under the jurisdiction or authority of certain other federal agencies, certain dams inspected by state agencies which the governor requests be excluded from the inspection, and those dams which the Secretary of the Army determines do not pose any threat to human life or property.

The Secretary of the Army would immediately notify the governor of the state in which a dam is located of any hazardous conditions found during an inspection and may, under these circumstances and at the request of the owner, perform detailed engineering studies to determine the structural integrity of the dam. The Corps updates the National Inventory of Dams every two years depending upon the availability of appropriated funds. As we stated previously, the last update occurred in early 2005.

State Dam Safety Programs

Four years ago, few state dam safety programs were adequately funded or staffed. Today, the situation has not improved significantly. On average nationwide, there are 415 dams per full-time equivalent (FTE) staff. In 15 states, this number exceeds 500, and four report more than 1,000 dams per FTE staff.

In 1998, a Texas House committee recommended adding 15 staff members to that state's six-member dam safety team; today, there are still only six staff members responsible for inspecting nearly 7,500 dams. One Texas official commented that, "because of inadequate staffing, some dams would not be examined for three centuries."

Dam Rehabilitation and Repair

The National Dam Safety and Security Act of 2002, which provided funding through grants, has improved state dam safety programs, but it did not provide funding for needed repairs. To be sure, some progress is being made through the repair of small watershed dams constructed with assistance from the Natural Resources Conservation Service in the Department of Agriculture. But this is only a small portion of the total number of non-federal dams**.** On the federal side, federally owned and federally regulated hydropower dams are in good condition; however, continuing budget restrictions and increased attention to security are placing pressure on and limiting many agency dam safety programs.

We need to establish programs by which the federal government can carry out its legitimate task in protecting the public safety and welfare from obsolescent dams. We know that the 79,000 dams in the U.S. National Inventory of Dams continue to age and deteriorate, yet there is no national funding program to fund the repair of unsafe dams.

According to results of a study by the Association of State Dam Safety Officials, the total investment to bring U.S. dams into safety compliance or to remove obsolete dams tops $30 billion.

That is why the bill sponsored by Representative Sue Kelly **H.R. 1105, the Dam Rehabilitation and Repair Act**, is so badly needed**.** The bill would provide a modest $350 million over four years for the repair, rehabilitation, or removal of non-federal, high-hazard, publicly owned dams. ASCE strongly recommends that federal and state legislation like H.R. 1105 be enacted to provide a funding source for repair and rehabilitation of dams in the United States.

In addition, ASCE supports—

- Enactment of state and federal regulations and legislation to protect the health and welfare of citizens from the catastrophic impact of dam failure. The federal government must accept the responsibility for the safety of all federal dams and federally regulated dams.
- Adequate funding for federal agencies, including the Departments of Defense and Interior, in order to operate and maintain federal dams and to provide them with sufficient security improvements.
- A fully funded National Dam Safety Program, administered by the DHS, which provides leadership through technical assistance from federal agencies and funding to assist states with assuring the safety and security of state-regulated dams.

Thank you, Mr. Chairman. That concludes my statement. I would be pleased to answer any questions that you may have.